

A KEY TO THE SPECIES OF APHIDS (HOMOPTERA:  
APHIDIDAE) ON WILD *GERANIUM* SPP. IN THE  
UNITED STATES, WITH THE DESCRIPTION  
OF A NEW SPECIES<sup>1</sup>

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*Abstract.*—A key is given to the species of aphids known to occur on wild geraniums in the United States. The apterous vivipara, alate vivipara, apterous ovipara, and alate male of *Amphorophora coloutensis* Smith and Knowlton, new species, are described. They were collected on *Geranium fremontii* Torr. ex A. Gray and *G. richardsonii* Fisch. and Trantv. in Colorado and Utah.

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Aphids are at times quite common on wild geraniums (*Geranium fremontii* Torr. ex A. Gray and *G. richardsonii* Fisch. and Trantv. in Colorado, Idaho and Utah), and often cause some distortion of plants. The following key should be useful in identifying the species known to occur on wild geraniums in the United States.

KEY TO APHIDS ON WILD *GERANIUM*

Apterous and Alate Viviparae

- 1. Siphunculi reticulate (4 or more rows of reticulations) ..... 2
- Siphunculi not reticulate ..... 4
- 2(1). Siphunculi without setae; rostral IV+V with 6–8 accessory setae .... 3
- Siphunculi usually with setae; rostral IV+V with 12–16 accessory setae (Colo., Idaho, Utah) .....  
..... *Macrosiphum aetheocornum* (Smith and Knowlton, 1939)
- 3(2). Antennal segment III of alate vivipara with 10–18 secondary rhinaria; antennal segment III of apterous vivipara with 2–6 secondary rhinaria ..... *Macrosiphum euphorbiae* (Thomas, 1878)
- Antennal segment III of alate vivipara with 5–10 secondary rhinaria, antennal segment III of apterous vivipara with 0–1 secondary rhinaria ..... *Macrosiphum geranii* (Oestlund, 1887)
- 4(1). Siphunculi swollen on distal half ..... 6
- Siphunculi not swollen on distal half (Idaho, Utah, Wyo.) ..... 5

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- 5(4). Siphunculi without setae . . . . . *Acyrtosiphon malvae* (Mosley, 1841)  
 – Siphunculi with setae (Syn.: *Capitophorus cefsmithi* Knowlton, 1940  
 [Heie 1979]) . . . . . *Kakimia crenicornis* (Smith and Knowlton, 1939)
- 6(4). Rostral IV+V of apterous viviparae with 15–20 accessory setae (Fig.  
 1A); apterous viviparae with antennal segment III bearing 0–2 sec-  
 ondary rhinaria (Colo., Utah) . . . *Amphorophora coloutensis*, new species  
 – Rostral IV+V of apterous viviparae with 30–40 accessory setae (Fig.  
 1B); apterous viviparae with antennal segment III bearing 4–8 second-  
 ary rhinaria (Colo., Idaho, Utah) . . . . .  
 . . . . . *Amphorophora geranii* Gillette and Palmer, 1929

***Amphorophora coloutensis* Smith and Knowlton, NEW SPECIES**

**Figs. 1A, C, E**

Apterous viviparae.—Color of living material: Pale whitish with longitudinal greenish-brown streak on abdomen. Cleared specimens: Dusky to dark on joints of antenna and antennal segment VI, distal 1/5 of tibiae, and all of tarsi. Remainder of body and appendages pale.

Measurements (11 specimens) (all measurements in mm, first measurement represents the holotype): Body, 3.05 (2.90–3.42); head width, 0.61 (0.58–0.66); antennal segment III, 0.85 (0.71–0.88), IV, 0.67 (0.58–0.76), V, 0.56 (0.49–0.58), VI, 0.15 (0.11–0.16)+0.89 (0.59–0.89); rostral IV+V, 0.18 (0.16–0.18); hindtibia, 2.00 (1.80–2.27), metatarsomere II, 0.10 (0.09–0.12); siphunculi, 0.67 (0.60–0.80); cauda, 0.37 (0.32–0.48).

Morphological characters: Setae on head, antenna and body, blunt to slightly capitate to distinctly capitate. Setae on antenna about 1/2 width of antennal segment III at base. Antennal tubercles smooth without evident denticulations on ventral surface. Antennal segment III with 0–2 secondary rhinaria. Head with medial area of vertex rectangular. Rostrum attaining metacoxae and bearing 15–18 accessory setae (Fig. 1A). Siphunculi swollen slightly and bearing a few denticulations, especially on basal 1/2 (Fig. 1E). Tarsal chaetotaxy 2-2-3 or 3-3-3. Cauda nearly parallel-sided, blunt, bearing 10–20 pointed setae (Fig. 1C).

Alate vivipara.—Color of living material: Not observed. Cleared specimens: Dusky on antenna beyond base of antennal segment III, distal 1/4 of femora, distal 1/4 of tibiae, all of tarsi. Dusky on siphunculi but not as dark as antenna. Pale on remainder of body and appendages.

Measurements (1 specimen): Body, 3.2; head width, 0.61; antennal segment III, 0.86, IV, 0.72, V, 0.61, VI, 0.16+0.89; rostral IV+V, 0.19; hindtibia, 2.10; metatarsomere II, 0.12; siphunculus, 0.60; cauda, 0.36.

Morphological characters: Setae on antenna and body knobbed; antennal segment III with 14–16 secondary rhinaria; rostrum attaining metacoxae; rostral IV+V with 20 accessory setae; siphunculi slightly swollen with inconspicuous denticulations; cauda elongate and bearing 15 setae.

Apterous ovipara.—Color of cleared specimens: Dusky on antenna, distal 1/5 of tibiae and tarsi, siphunculi may be slightly dusky. Pale on remainder of body and appendages.

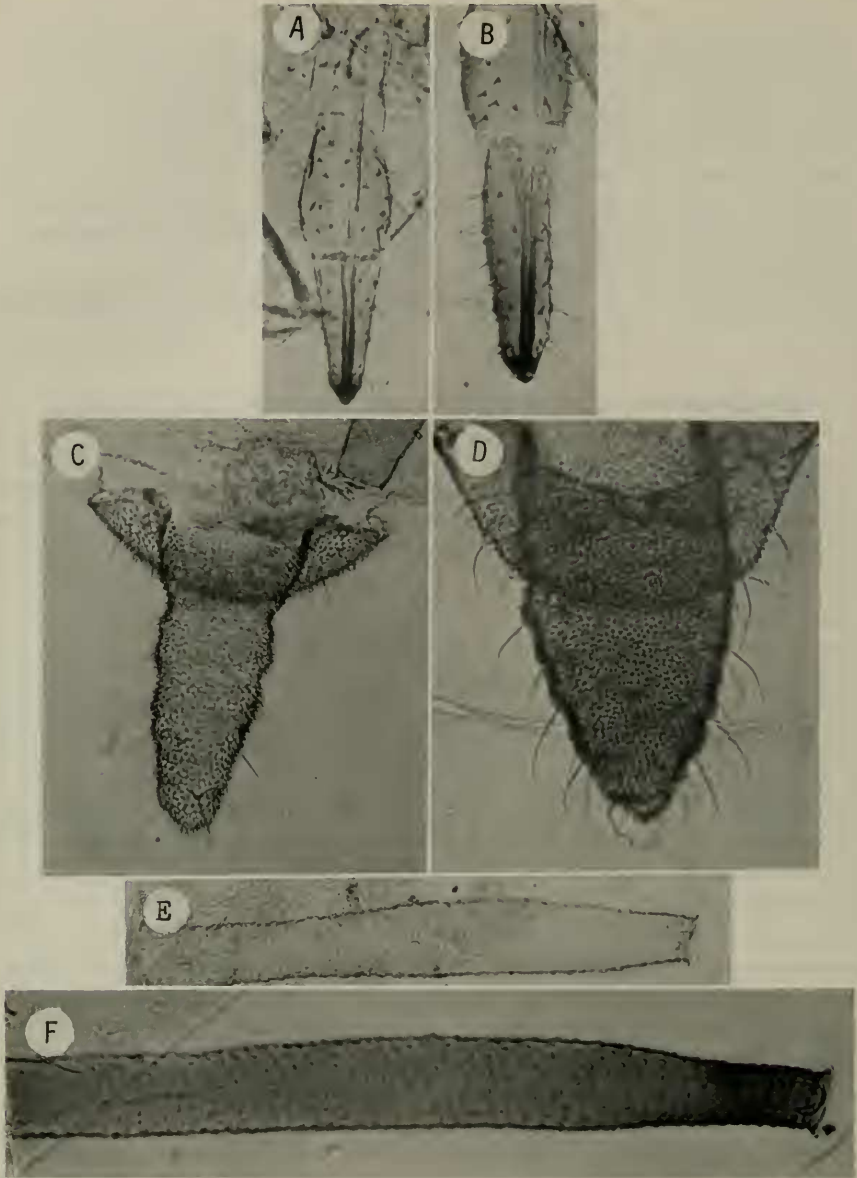


Fig. 1. A, C, E, *Amphorophora coloutensis*, apterous vivipara. B, D, F, *A. geranii*, apterous vivipara. A, B, Rostral IV+V. C, D, Cauda. E, F, Siphunculus. All photographs are the same magnification.

Measurements (4 specimens): Body, 2.8–2.9; head width, 0.63–0.66; antennal segment III, 0.66–0.69, IV, 0.49–0.66, V, 0.43–0.55, VI, 0.11–0.13+0.60–0.65; rostral IV+V, 0.17–0.20; hindtibia, 1.56–1.8, metatarsomere II, 0.11–0.13; siphunculi, 0.61–0.67; cauda, 0.26–0.31.

Morphological characters: Setae on head and body capitate; antennal segment III without secondary rhinaria; rostrum attaining metacoxae; rostral IV+V with apparently 18–22 accessory setae; tarsal chaetotaxy 3-3-3; siphunculi slightly swol-

len and distinctly denticulated; cauda blunt and bearing apparently 14–22 setae; hindtibia with numerous sensoria on basal  $\frac{2}{3}$ .

Alate male.—Color of cleared specimens: Dusky on antenna, distal  $\frac{1}{4}$  of femorae, distal  $\frac{1}{5}$  of tibiae, and all of tarsi. Distal portion of siphunculi may be slightly dusky. Pale on remainder of body and appendages.

Measurements (2 specimens): Body, 2.5–2.65; head width, 0.54; antennal segment III, 0.77–0.81, IV, 0.77–0.79, V, 0.61–0.69, VI, 0.13–0.15+1.04–1.13; rostral IV+V, 0.19–0.20; hindtibia, 2.04–2.09, metatarsomere II, 0.11; siphunculi, 0.50–0.55; cauda, 0.23.

Morphological characters: Setae on head and body pointed to slightly capitate. Secondary rhinarium on antennal segment III, 58–69, IV, 28–36, V, 18–22, rostrum attaining metacoxae; rostral IV+V with approximately 18 accessory setae; tarsal chaetotaxy 3-3-3; cauda with 12–14 setae.

Collections.—On wild geranium (probably *Geranium fremontii* Torr. ex. A. Gray or *G. richardsonii* Fisch. and Tranv.). COLORADO: Roosevelt Forest, 6 Aug. 1960, collection 60-751 (7 apt. viv., 1 al. viv., 4 nymphs), C. K. Smith, C. F. Smith and T. O. Thatcher. Estes Park on *Geranium richardsonii*, 23 July 1976 (2 apt. viv.), H. G. Walker; on *Geranium fremontii*, 23 July 1974 (5 apt. viv.), H. G. Walker; 5 Aug. 1978 (1 apt. viv.), H. G. Walker; 11 Aug. 1977 (2 al. ♂), H. G. Walker. UTAH: Monte Cristo, 21 July 1976, collection no. 76-68 (7 apt. viv., 1 nymph), G. F. Knowlton. Parley's Canyon, 21 July 1959 (1 apt. viv., 2 apt. ovip.), collection no. K-199, G. F. Knowlton. Daniel's Canyon, 21 July 1959 (1 apt. viv., 1 apt. ovip.), collection no. K-219, G. F. Knowlton.

Type-locality.—Roosevelt Forest, Colorado.

Types.—Holotype, apterous viviparous ♀ on a slide with an alate and a nymph. The holotype is at 5 o'clock, on slide labeled "60-751, wild geranium, Roosevelt Forest, Colorado, 8-6-60 [6 August 1960], CKS-CFS-T.O. Thatcher." Holotype deposited in the National Museum of Natural History, Washington, D.C., on indefinite loan from N.C. State University; paratypes in collections of the National Museum of Natural History, George F. Knowlton, Clyde F. Smith, and N.C. State University in Raleigh.

Etymology.—Named for Colorado and Utah, the states from which *A. coloutensis* has been collected.

Discussion.—*Amphorophora coloutensis* keys to *Amphorophora urtica* Essig, 1942, in Palmer (1952: 230) but differs in having apterous vivipara with the head and antennal tubercles smooth ventrally instead of denticulate, in lacking presiphuncular sclerites on the abdomen, and in lacking dusky areas around the lateral abdominal tubercles.

Of the 19 species of *Amphorophora* Buckton, 1876, previously known from North America (Smith and Parron, 1978), only *A. geranii* occurs on wild geranium.

*Amphorophora coloutensis* may be separated from *A. geranii* and other aphids living on wild geranium by the characteristics given in the key.

#### LITERATURE CITED

- Buckton, G. B. 1876. Monograph of the British Aphides. Ray Society, London 1: 1–193.  
 Essig, E. O. 1942. New species of the genus *Amphorophora* (Hemiptera: Aphididae). Ann. Entomol. Soc. Am. 35: 2–16.  
 Gillette, C. P. and M. A. Palmer. 1929. Five new Aphididae from Colorado. Ann. Entomol. Soc. Am. 22: 468–479.



- Heie, O. E. 1979. Revision of the aphid genus *Nasonovia* Mordvilko, including *Kakimia* Hottes and Frison, with keys and descriptions of the species of the world (Homoptera: Aphididae). Entomol. Scand. Suppl. 9, pp. 1-105.
- Knowlton, G. F. 1940. A new geranium aphid (Homoptera: Aphididae). Entomol. News 51: 196-197.
- Mosley, O. 1841. Aphides. Gard. Chron. 1: 628, 747-748, 827-828.
- Palmer, M. A. 1952. Aphids of the Rocky Mountain Region. Thomas Say Found. 5: 1-452.
- Oestlund, O. W. 1887. Synopsis of the Aphididae of Minnesota. Geol. Nat. Hist. Surv. Minn. Bull. 4: 1-100.
- Smith, C. F. and G. F. Knowlton. 1939. Three intermountain aphids. Can. Entomol. 71: 241-243.
- Smith, C. F. and C. S. Parron. 1978. An annotated list of Aphididae (Homoptera) of North America. N.C. Agric. Exp. Stn. Tech. Bull. No. 255: 1-428.
- Thomas, C. 1878. A list of the species of the tribe Aphidini, family Aphidae, found in the United States, which have been heretofore named, with descriptions of some new species. Bull. Ill. State Lab. Nat. Hist. 2: 3-16.

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#### NOTE

##### On the Homonymy of *Hybocoris* Kormilev, 1982 (Hemiptera: Aradidae)

Dr. I. M. Kerzhner, Zoological Institute, Academy of Sciences, USSR, Leningrad, has advised me that the name *Hybocoris* Kormilev, 1982 (Wasmann J. Biol. 40[1-2]: 7), is preoccupied by *Hybocoris* Kiritschenko, 1914 (1913) (Russk. Entomol. Obozr. 13[3-4]: 301) (Hemiptera: Pentatomidae). Therefore, I propose for *Hybocoris* Kormilev the replacement name *Aparilocoris* (NEW NAME), which is Greek meaning deceptive. *Hybocoris mexicanus* Kormilev (1982), should therefore be *Aparilocoris mexicanus* (Kormilev) (NEW COMBINATION).

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